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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,277	03/21/2001	Toshihiko Hanamachi	6946-10	3964

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/814,277

Applicant(s)

HANAMACHI ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3, 5, 7, 10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334). McMillin teaches a heater device (Figure 1) including a ceramic (“anodized aluminum”, column 4, lines 10-15) heater (2, column 5, lines 35-50) defining a heating surface. McMillin further teaches a detachable (column 4, lines 52-55) ceramic plate made of aluminum nitride or alumina (1,1c, column 4, lines 20-25, 33-39; alumina – “Al₂O₃”) having a substantially horizontal planar lower surface (1/2 interface) conforming to and supported by the heating surface (1/2 interface; Figure 1), and in turn supports an object (4) to be heated. McMillin further teaches a radio frequency electrode (10, Figure 1) buried in the ceramic heater. McMillin further teaches that the ceramic plate includes an upper supporting surface (1/1c surface) for supporting an object to be heated.

McMillin teaches a fastened (8) ceramic plate, and, as a result, McMillin does not teach the ceramic plate that is not fastened to the heater.

It would have been obvious to one of ordinary skill in the art at the time the invention was made not to fasten McMillin’s ceramic plate to McMillin’s ceramic heater.

Motivation not to fasten McMillin’s ceramic plate to McMillin’s ceramic heater is to provide rapid servicing of McMillin’s ceramic heater.

3. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334). McMillin is discussed above. McMillin further teaches an electrode (1)

Art Unit: 1763

for RF power (24) buried in the ceramic plate (1,1c; Figure 1). McMillin does teach the thickness of the ceramic dielectric layer 1c as being within 5-50 μ m (column 4, line 38). McMillin does not teach that the ceramic plate has a thickness of less than 2mm or less than 5mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the thickness of the ceramic plate.

Motivation to optimize the thickness of the ceramic plate is to optimize the electrostatic clamping force (column 1, lines 35-38). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

4. Claims 8, 9, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334) in view of Beinglass et al (USPat. 5,645,646). McMillin is discussed above. McMillin does not discuss an annular low wall surrounding the supporting surface, nor does McMillin teach a process vessel housing the heater and ceramic plate.

Beinglass teaches a similar chuck (20; Figures 1-3,6) including an annular low wall surrounding the supporting surface (Figure 2,3,6) and a process vessel (12) housing the chuck.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the height of McMillin's annular low wall to surround the supporting surface and include this structure in a process vessel housing as taught by Beinglass.

Motivation to increase the height of McMillin's annular low wall to surround the supporting surface and include this structure in a process vessel housing as taught by Beinglass is to provide

Art Unit: 1763

for uniform heating (column 1, lines 41-51). Motivation to include the support of McMillin in the chamber of Beinglass is to use the chuck as designed by McMillin in a processing apparatus.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334) and Beinglass et al (USPat. 5,645,646) in view of Wang (USPat. 6,488,776). McMillin and Beinglass are discussed above. McMillin and Beinglass do not teach chamber operating pressures.

Wang teaches a similar CVD deposition reactor (Figure 3A) including low pressure deposition chamber pressures of 0.1torr to 1torr for "good step coverage" (column 1, lines 31-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize McMillin's and Beinglass' chamber processing pressure to be between 0.5torr and 10torr as taught by Wang.

Motivation to optimize McMillin's and Beinglass' chamber processing pressure to be between 0.5torr and 10torr as taught by Wang is for providing good step coverage during deposition as taught by Wang (column 1, lines 31-40). Further, it would be obvious to those of ordinary skill in the art to optimize the operation of the claimed invention (In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990), MPEP 2144.05).

Response to Arguments

6. Applicant's arguments filed August 29, 2003 have been fully considered but they are not persuasive.

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, there is motivation to combine the references found in the knowledge generally available to one of ordinary skill in the art. Specifically, as originally stated, "Motivation not to fasten McMillin's ceramic plate to McMillin's ceramic heater is to provide rapid servicing of McMillin's ceramic heater.". Additionally, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use (i.e. leaving McMillin's fastened (8) ceramic plate unfastened to McMillin's heater by not bolting/screwing fastening means 8.), then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

8. Applicant states that McMillin's chuck must be fastened in order for the cooling gas not to escape. The Examiner disagrees. For McMillin's cooling gas not to escape, the operating pressure of McMillin's cooling gas flow would only have to be made less (or equal to) than the

prevailing operating pressure of McMillin's chamber within which McMillin's heater device would be housed.

9. With respect to newly added claim 19, Applicant is directed to the new claim rejection above as necessitated by the amendment.

Conclusion

10. Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

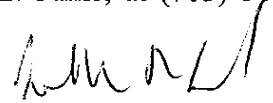
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to

Application/Control Number: 09/814,277

Page 7

Art Unit: 1763

the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

A handwritten signature in black ink, appearing to read 'JRL', is positioned above the printed name of the examiner.

JEFFRIE R. LUND
PRIMARY EXAMINER